

Notice of Allowability

Application No.

09/699,419

Examiner

Shamim Ahmed

Applicant(s)

GAKU ET AL.

Art Unit

1765

ab

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/29/03.
2. ☒ The allowed claim(s) is/are 15-18 and 24.
3. ☒ The drawings filed on 31 October 2000 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- 1 ☐ Notice of References Cited (PTO-892)
- 2 ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3 ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____
- 4 ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

- 5 ☐ Notice of Informal Patent Application (PTO-152)
- 6 ☒ Interview Summary (PTO-413), Paper No. 1/21/04
- 7 ☒ Examiner's Amendment/Comment
- 8 ☒ Examiner's Statement of Reasons for Allowance
- 9 ☐ Other

SUPERVISOR
NADINE G. NORTON
PRIMARY EXAMINER

[Signature]

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Matthew Jacob on 1/21/04.

The application has been amended as follows:

IN THE CLAIMS:

Cancel the non-elected claims 1-14 and 19-23.

Claim 15, A method of making a hole in a copper-clad board, in which a surface of the metallic-treatment layer of the copper-clad board [recited in claim 1], which metallic-treatment layer contains nickel as an essential element, is directly irradiated with a carbon dioxide gas laser having an energy sufficient for processing a copper foil by means of the pulse oscillation of the carbon dioxide gas laser, and said carbon dioxide gas laser having substantially the same energy of irradiation from beginning to end, to make said hole [.] , wherein said copper- clad board is obtained by disposing a double-side-treated copper foil provided with a metallic-treatment layer having a high absorption rate of a carbon dioxide gas laser energy on at least one surface, at least on an outer layer of a thermosetting resin composition layer such that the metallic-treatment layer is formed on a shiny surface of the copper foil which shiny surface is to be a surface layer, and laminate-forming the double-side-treated copper foil and the

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thermosetting resin composition layer under heat and pressure, to make an alloy of the metallic-treatment layer and the copper by the above heating.

Claim 24, A method of making a hole in a copper-clad board, in which a surface of the metallic-treatment layer of the copper-clad board [recited in claim 1], which metallic-treatment layer contains nickel as an essential element, is directly irradiated with a carbon dioxide gas laser having an energy sufficient for processing a copper foil by means of the pulse oscillation of the carbon dioxide gas laser, and said carbon dioxide gas laser having increasing energy of irradiation from beginning to end, to make said hole [.] , wherein said copper-clad board is obtained by disposing a double-side-treated copper foil provided with a metallic-treatment layer having a high absorption rate of a carbon dioxide gas laser energy on at least one surface, at least on an outer layer of a thermosetting resin composition layer such that the metallic-treatment layer is formed on a shiny surface of the copper foil which shiny surface is to be a surface layer, and laminate-forming the double-side-treated copper foil and the thermosetting resin composition layer under heat and pressure, to make an alloy of the metallic-treatment layer and the copper by the above heating.

2. The following is an examiner's statement of reasons for allowance: The closest prior art Gaku et al (6,280,641) discloses a process of making hole in a copper-clad laminate, wherein a copper foil surface which is to be irradiated with a carbon dioxide gas laser.

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The reference fails to fail to teach that the copper foil of the copper-clad laminate is metallic-treated in order to form an alloy layer of the metallic-treatment layer essentially of nickel and the copper on the copper foil surface.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Shamim Ahmed
Examiner
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SA
January 21, 2004

SUPERVISOR
NADINE G. NORTON
PRIMARY EXAMINER
Norton